LEGISLATIVE LIBRARY OF BRITISH COLUMBIA
3 3298 00289 6372

Status of Community Water Supplies in British Columbia

2003 Drought Survey

BRITISH COLUMBIA

DOC
BC
L37
D:S72
2003
c.3

LEGISLATIVE LIBRARY
VICTORIA BC V8V 1X4

National Library of Canada Cataloguing in Publication Data
Main entry under title:
Status of community water supplies in British Columbia : 2003 drought survey

Also available on the Internet.
"Drought survey report, 2003"—Executive summary.
Prepared by Land and Water BC and the Ministry of Community, Aboriginal and Women's Services. Cf. Introd.
ISBN 0-7726-5059-4

1. Water-supply - British Columbia. 2. Droughts - British Columbia. 3. Precipitation (Meteorology) - British Columbia. I. Land and Water British Columbia. II. British Columbia. Ministry of Community, Aboriginal and Women's Services. III. Title: Drought survey report, 2003.

TD227.B7S72 2003 363.6'1'09711 C2003-960215-X

Copyright ©2003, Land and Water British Columbia Inc.

Copies of this report may be:

downloaded from
http://www.lwbc.bc.ca

ordered from
Water Management Branch
Land and Water British Columbia, Inc.
PO Box 9340, Station Prov. Gov.
Victoria, BC V8W 9M1

Table Of Contents

Introduction 1
Climate 2
Provincial Survey Results 4
- Quick Facts 4
- Current Situation 4
- Water Availability 5
- Rate of Use 6
- Water Quality Concerns 6
- Current Water Restrictions 7
- Increased Expenditures Resulting From Drought 7
- Incentives for Conservation 8
- Water Management Planning 8

Regional Highlights 9
- Vancouver Island 9
- Lower Mainland 10
- Southern Interior 11
- Columbia & Kootenays 11
- Cariboo 12
- Omineca-Peace and Skeena 12

Additional Survey Comments 13
Appendix 14
- Drought Management Action Plan 14
- Survey Questions 16
- Links & References 17

List of Figures

Figure 1 Snowpack as of April 1, 2003. 2
Figure 2 Departure from normal summer temperature, 2003. 3
Figure 3 Precipitation for June, July and August with surface low flow data for September 2- 8. 3
Figure 4 Provincial summary for water and drought management planning. 9

List of Tables

Table 1 The number of systems currently stressed due to drought and anticipated to be stressed in the spring of 2004. 4
Table 2 Current availability of water supply by population. 5
Table 3 Current rate of water use expressed as a percentage of population. 6
Table 4 Water systems experiencing water quality issues related to drought conditions. 6
Table 5 Water Systems currently with imposed water restrictions and those that may require an escalated restriction this year. 7
Table 6 Purveyors with unusual or increased expenditures resulting from the drought conditions. 7
Table 7 Percentage of purveyors with developed water management plans. 9

Executive Summary

British Columbia is experiencing a significant drought. The same hot, dry climatic conditions that have resulted in an extreme fire hazard throughout southern BC are also resulting in a scarcity of water for human use, fish and economic activities. For some streams, the current flow conditions are the lowest recorded in 50 years and some are unprecedented. Groundwater levels are also being affected by the drought.

The situation requires careful monitoring and a response that is timely and targeted. To ensure that we have the most current information regarding the status of community water supplies, a survey was sent to 277 purveyors of water on September 10, 2003. This report summarizes the 180 responses received and represents approximately 3.3 million people and 329 water systems.

Consistent with the snow pack, precipitation and temperature data, the survey results indicate that some of the water purveyors in the southern third of the province are experiencing water supply problems. These problems include lack of available volume, elevated rates of use, decreased water quality and increased expenditures. This has forced many communities to impose restrictions on water use.

Generally, the impacted systems are found in an area that extends from the southern portion of Vancouver Island, through the Lower Mainland and Southern Interior to the Cariboo and the Central Kootenay. Both surface and groundwater sources are impacted. The Central Okanagan is the most affected, with approximately half of the population serviced by systems with below normal water supplies. The most significant in terms of population affected is the Greater Vancouver Regional District with approximately 2.2 million people served by a water supply now at 33% of full capacity.

The survey also shows that 43 water systems may suffer from drought related problems next spring. These are largely located in the Southern Interior as the coast typically recharges their reservoirs through fall and winter rainfall events.

The survey responses indicate a need for more water and drought management planning. For example, the use of supply and demand, hydrology, drought and conservation planning and study tools could be improved.

104-00767/

Introduction

More than 24,000 rivers, creeks and lakes provide water for domestic, irrigation, industrial, and power generation purposes in BC. In addition to the many surface supplies, groundwater aquifers are also an important source of water for over 600,000 people in the province.

Over 17% of our surface water sources have reached, or are nearing their capacity to reliably supply water in a normal year. Groundwater levels in some areas are declining. Many factors including climate, population growth, water quality and infrastructure costs have an effect on the availability and reliability of our water supplies.

Climatic conditions can vary substantially each year. Drought in BC, which can have a significant impact on the reliability of supplies, is typically caused by either low snowpacks from the previous winter, hot and dry conditions in the summer, or a delay in the onset of fall rains. In 2003, we are experiencing the culmination of all three conditions, which together have produced a record drought in many areas of the province. These dry conditions have resulted in an extreme fire hazard situation and are causing water use conflicts throughout southern BC.

The Province, as part of a coordinated approach designed to minimize the effects of drought, has implemented a Drought Management Action Plan (see Appendix). This report was completed under the direction of the Deputy's committee that was formed as part of the plan. The purpose of the report is to determine if communities are facing water shortages now or anticipate facing shortages in the near future. The work was undertaken by staff from Land and Water BC Inc. and the Ministry of Community, Aboriginal and Women's Services.

To ensure the most current information regarding the status of community water supplies was available, a survey was sent to 277 purveyors of water on September 10, 2003. This report summarizes the 180 responses received, and provides the results on both a provincial and regional basis.

Climate

Climate has contributed substantially to current drought conditions in parts of British Columbia. The hot, dry summer weather followed an exceptionally dry 14 month period across southern BC. October and November of 2002 were dry, so winter started with generally lower groundwater levels in the Southern Interior. November to January precipitation was also low and temperatures were 2° - 5° C warmer than normal. Winter snowpack was reduced in many parts of BC as seen in Figure 1, and although March and April were generally wetter than usual, there was little contribution to the snowpack.

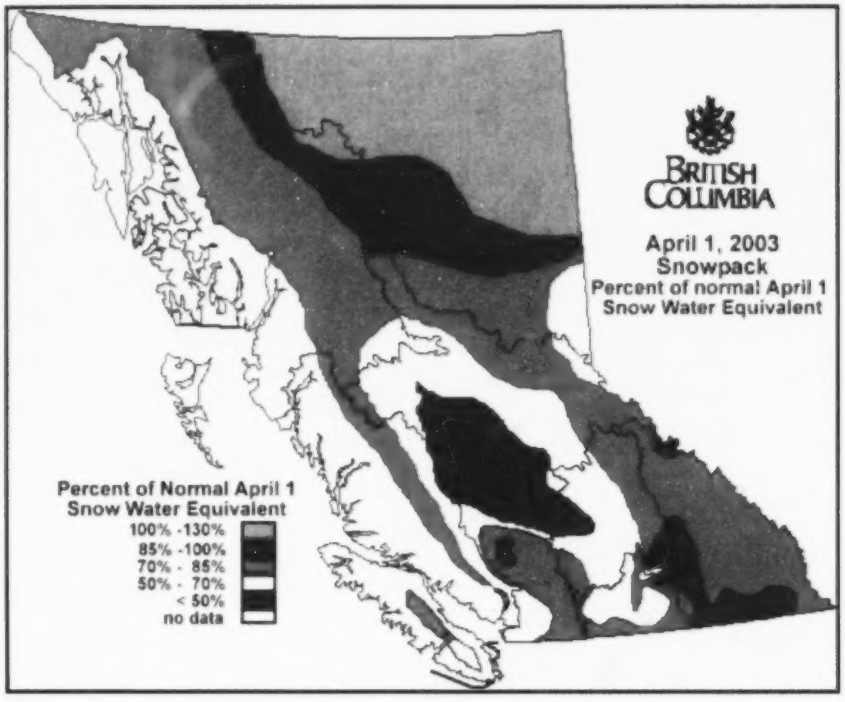

Figure 1. Snowpack as of April 1, 2003.

The summer months were extremely dry and hot in the southern half of BC, refer to Figure 2. Warmer temperatures combined with lower precipitation throughout most of the province have contributed to the drought. Figure 3 superimposes low flow data over summer precipitation indicating where supplies may be at greatest risk for water availability. While there have been showers in the southern part of the province in mid-September, stream flows may not recover unless there are several days of sustained, relatively heavy rain.

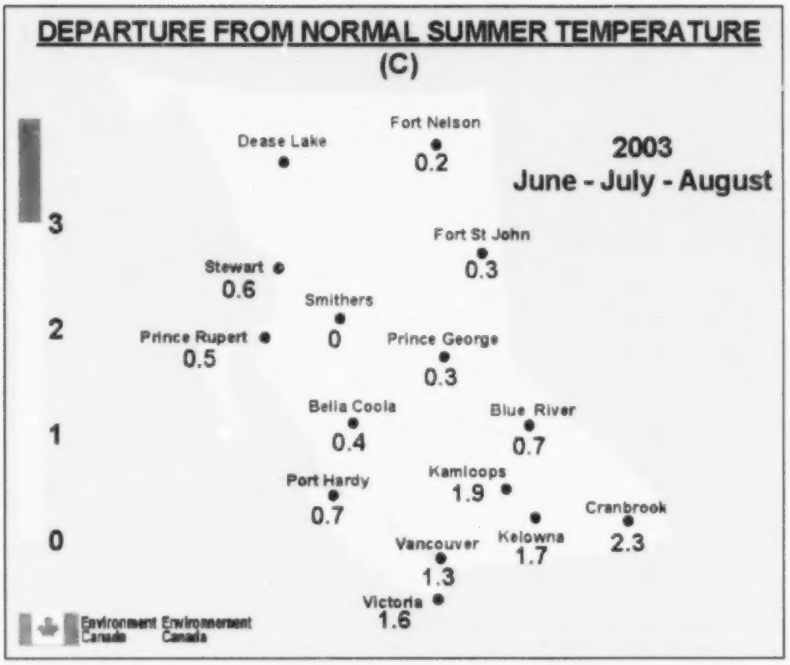

Figure 2. Departure from normal summer temperature, 2003.

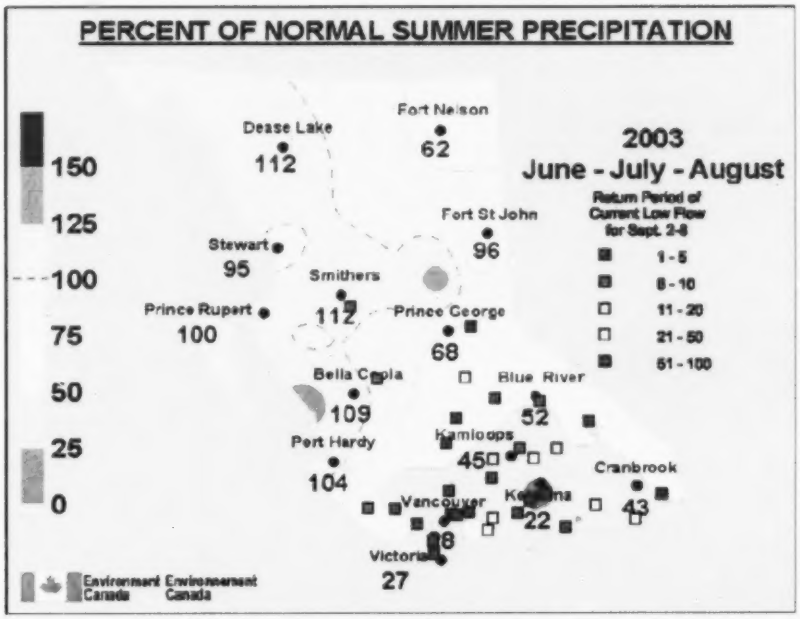

Figure 3. Precipitation for June, July and August with surface low flow data for September 2- 8. Figure from Environment Canada and superimposed with low flow data from the River Forecast Centre.

Provincial Survey Results

The survey, included in the Appendix, was sent to all regional districts, municipalities, improvement districts and irrigation districts throughout the province. Private utilities and individual users were not included. A good response was received with 65% of the surveys returned. The surveys were collated and summarized, which provided a snapshot of the status of water supplies and formed the basis of this report.

Quick Facts

- 277 surveys distributed with 180 returned which represents 3.3 million people served by 329 water systems;
- Approximately 2.2 million people are currently being impacted by drought;
- Currently there are 84 systems stressed in the lower third of the province;
- It is anticipated 43 water systems may suffer from drought related problems next spring;
- The systems represented by the survey provide water for the following purposes: 83.9% domestic, 9.9% irrigation, 5.1% other;
- Water supplies based on population served is 64.3% surface water and 35.7% groundwater.

Current Situation

As hypothesised from the climate data, the southern third of the province exhibits stress on their water systems, refer to Table 1. There do not appear to be supply problems resulting from the drought in the Omineca/ Peace or Skeena Regions. Roughly half of the systems currently exhibiting stress are anticipating the stress to continue to next spring.

Table 1. The number of systems currently stressed due to drought and anticipated to be stressed in the spring of 2004.

Number of Systems Stressed	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Currently	11	14	21	0	26	0	12	84
Anticipated in spring	2	6	13	0	16	0	6	43

Water Availability

The survey asked purveyors to give an indication if their water supplies were above, at, or below normal available volumes for this time of year. Table 2 provides an estimate of the population in each region of the province in relation to the water volumes available. The survey does not indicate the extent to which supplies are above or below normal. The Greater Vancouver Regional District (GVRD) demonstrates the largest single impact with a water supply below normal that is affecting over 2 million people in the Lower Mainland. Most recent data shows the GVRD water supply at 33% of full capacity. In the Lower Mainland, reservoir recharging occurs largely in the fall and winter during rainfall events. Also under a coastal influence, the Capital Regional District (CRD) has experienced below normal precipitation and would be in a similar situation to the GVRD had they not recently completed a dam upgrade.

Table 2. Current availability of water supply by population.

Available Volume	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Above	0	18,600	0	0	0	6,400	319,000	344,000
Below	4,000	18,800	2,112,800	0	130,100	0	33,200	2,298,900
Normal	5,000	24,800	153,000	45,000	163,700	35,500	154,900	581,800
Total	9,000	62,100	2,265,800	45,000	293,900	41,900	507,000	3,224,700

In contrast the Southern Interior typically receives the majority of their surface water from base flow or storage that occurs during spring freshet. Spring freshet contributes to groundwater aquifer recharge, having implications on groundwater withdrawals and contributions to surface streams during the summer and fall. Roughly half of the population in the Southern Interior is serviced by systems with below normal volumes. The Cariboo is in a situation similar to the Southern Interior. Problems in the Kootenays appear to be site specific with the greatest problems occurring in the south-west portions of the region.

Several respondents expressed the opinion that even with normal snowpack during the 2003/2004 winter, there may not be enough recharge to groundwater reserves or reservoirs, which may leave the province's water supplies vulnerable for next year as well. The Provincial River Forecast Centre also indicates this may be possible.

Rate of Use

The rate of use is an important factor in understanding the current status of water supplies; however, it is difficult to determine without studying long term data sets. The survey was made to determine a very coarse three point ranking of whether usage was above, at, or below normal. The respondent's results are summarized in Table 3 and represented in terms of percentage of population affected.

Table 3. Current rate of water use expressed as a percentage of population.

Rate of Use (%)	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Total
Above	12.2	9.8	0.3	0.0	30.2	0.0	11.3	5.4
Below	73.3	15.3	91.5	38.9	4.9	1.5	6.8	65.7
Normal	13.3	75.1	8.1	61.1	64.8	98.8	81.9	28.9

The data indicates that most areas are experiencing normal rates of use while the Lower Mainland and Cariboo are below normal. These can both be attributed to the current restriction regime for the GVRD and District of 100 Mile House. Also of note is the distinctly higher proportion of above normal use in the Southern Interior, most likely a result of the extremely dry conditions existing in that region.

Water Quality Concerns

Source water quality generally deteriorates when water supplies are stressed. As a result, treatment facilities are also stressed, reducing their efficiency and generally requiring more maintenance, which in turn, raises operating costs.

Typically, those areas experiencing drought have expressed concern for water quality, as seen in Table 4.

Table 4. Water systems experiencing water quality issues related to drought conditions.

Water Quality Concerns	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Yes	1	1	5	0	10	0	6	23
No	10	27	19	10	35	14	43	158

Current Water Restrictions

In an effort to curb water usage, many communities impose water restrictions on their users. The restrictions vary but include alternate lawn watering days, complete sprinkling bans and various hosing and irrigation restrictions. Table 5 indicates the water systems with restrictions.

Purveyors of 37 water systems in the province are anticipating elevating the current level of restrictions this year, meaning they are anticipating a worsening water availability scenario in the near future.

Table 5. Water Systems currently with imposed water restrictions and those that may require an escalated restriction this year.

Current Water Restrictions	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Yes	6	21	22	2	34	0	35	120
No	5	7	4	7	12	13	13	61
Purveyors Considering Elevated Restrictions this year								
Yes	1	5	9	1	13	0	8	37
No	8	22	16	7	28	12	40	133

Increased Expenditures Resulting From Drought

Reflective of the regions with water systems impacted by the dry conditions, the Cariboo, Kootenay, Lower Mainland, Southern Interior and Vancouver Island regions all have purveyors with increased expenditures directly related to the drought, about 21% of respondents. Table 6 provides a breakdown by region of purveyors experiencing increased expenditures.

Many communities have increased advertising, monitoring and enforcement costs. Others have had to truck water or have additional pumping, electrical or water treatment expenses.

Table 6. Purveyors with unusual or increased expenditures resulting from the drought conditions.

Unusual Expenditures	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Yes	2	6	10	0	12	0	5	35
No	9	17	14	9	32	14	37	132

Incentives for Conservation

The survey showed that 24 out of 175 purveyors (14%) offer incentives for water conservation measures. Those regions offering incentives include the Lower Mainland, Skeena, Southern Interior and Vancouver Island. Incentives include the "use less, pay less" concept through metering of water and rebates for low volume toilets (6L or less) and irrigation controlling devices. Some are conducting free workshops on topics such as irrigation and native plant propagation.

Water Management Planning

There are a number of planning tools that purveyors can use to assist with drought planning. The survey asked if certain of these tools had been implemented. The tools include:

Water Supply Plan - projects the future demand for water and explores the alternative options available to develop a reliable supply of water to meet the long-term demand from a technical, financial and economic perspective. This plan may be a compilation of studies related to water management which may include those listed below.

Hydrology Study - analyzes the firm supply of water to a system, including the risk of severe, sustained drought (or flood) and the relative priority of the legal water rights to divert water for beneficial use.

Drought Management Plan - describes an agreed upon process to assess water supply conditions and the options for responding to an emerging drought based on pre-defined triggers, often for short term and long term drought situations.

Water Conservation Plan - is a plan that documents how customers are encouraged to use water more efficiently by systematically considering a wide range of specific water-saving measures.

The results from survey respondents, reflected in Figure 4, show that on a provincial basis, 63% have a supply plan and 57% have water conservation plans in place. Continuing, 26% have completed a hydrology study, 34% have completed a short term drought management plan and 23% have completed a long term drought management plan.

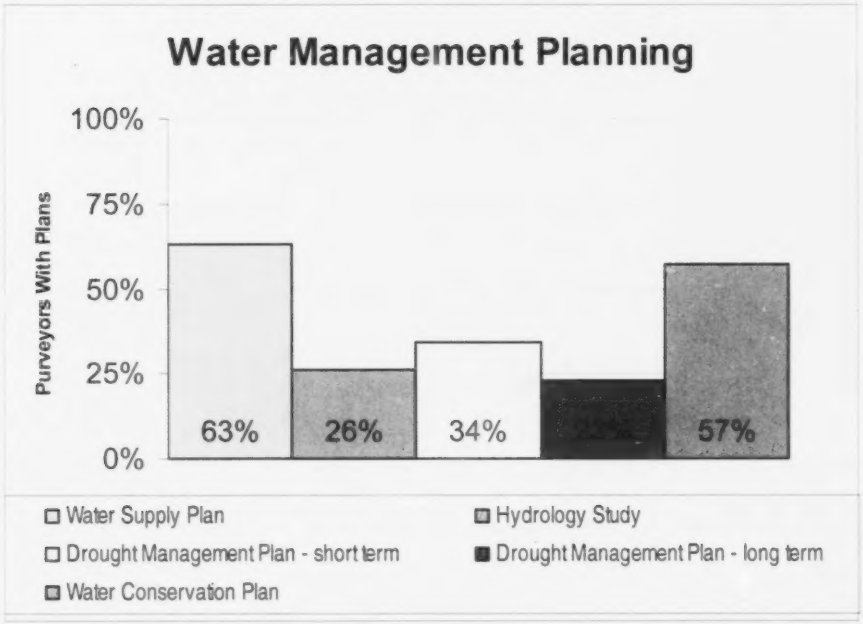

Figure 4. Provincial summary for water and drought management planning.

The Lower Mainland and Vancouver Island regions exceed the provincial average for both short term drought management planning and water conservation planning. The Southern Interior has surpassed the provincial average in completing supply plans.

Table 7. Percentage of purveyors with developed water management plans.

Preparedness Planning	Cariboo	Kootenay	Lower Mainland	Omineca / Peace	Southern Interior	Skeena	Vancouver Island	Province
Supply Plan	73	57	63	80	67	71	54	63
Hydrology Study	18	29	33	20	18	21	31	26
Drought Mgmt Plan - Short term	27	39	46	10	27	21	44	34
Drought Mgmt Plan - Long term	27	18	25	10	24	14	27	23
Water Conservation Plan	45	54	67	40	69	14	63	57

Regional Highlights

Vancouver Island

Victoria had the driest summer recorded since 1941 and Comox had the second driest summer on record. Many of the streams on southern Vancouver Island are at or near the lowest flows on record for the first week of September, including the Sooke River above the diversion, the Chemainus River and the Browns River near Courtenay. Some river flows are being augmented from storage; for example, the Englishman

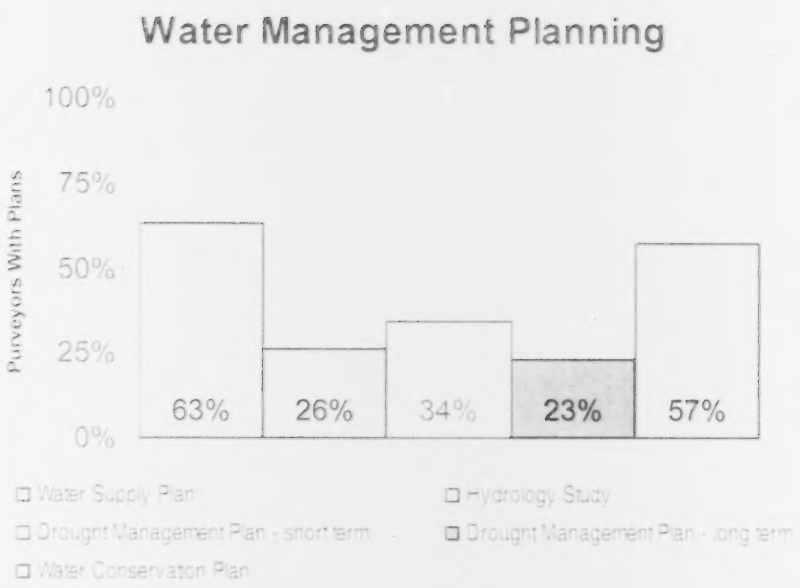

Figure 4. Provincial summary for water and drought management planning.

The Lower Mainland and Vancouver Island regions exceed the provincial average for both short term drought management planning and water conservation planning. The Southern Interior has surpassed the provincial average in completing supply plans.

Table 7. Percentage of purveyors with developed water management plans.

Preparedness Planning	Cariboo	Kootenay	Lower Mainland	Omineca Peace	Southern Interior	Skeena	Vancouver Island	Province
Supply Plan	73	57	63	80	67	71	54	63
Hydrology Study	18	29	33	20	18	21	31	26
Drought Mgmt Plan - Short term	27	39	46	10	27	21	44	34
Drought Mgmt Plan - Long term	27	18	25	10	24	14	27	23
Water Conservation Plan	45	54	67	40	69	14	63	57

Regional Highlights

Vancouver Island

Victoria had the driest summer recorded since 1941 and Comox had the second driest summer on record. Many of the streams on southern Vancouver Island are at or near the lowest flows on record for the first week of September, including the Sooke River above the diversion, the Chemainus River and the Browns River near Courtenay. Some river flows are being augmented from storage; for example, the Englishman

River. Releases into the Cowichan River and Puntledge River have been reduced to try and extend the period of flow in those rivers to protect fish habitat.

Groundwater observation wells in Saanich indicate below normal water levels. The District of Metchosin has many residents on private wells that are "stressed by drought". Even on the west coast, the District of Ucluelet indicates that the Lost Shoe Aquifer groundwater supply is insufficient during drought and that the backup supply, Mercantile Creek, requires upgrades to meet the demand. The Capital Regional District (CRD) recently upgraded the dam on the Sooke Reservoir, raising storage volume in the lake. Without this upgrade, communities in the CRD report that they would be in a similar situation to other purveyors. The CRD noted that residents on wells are reporting running out of water more than usual. Vancouver Island has 35 of 48 purveyors currently using water restrictions, 8 that may increase water restrictions and 5 that use incentives for water conservation. Communities on the north island do not have a problem with source water levels and areas such as Port Hardy and north received above average precipitation in the period June – August 2003.

Lower Mainland

Flows in both the Coquitlam River and Capilano River above the lakes are near historic minimums for the first week of September. The Fraser River at Hope is at approximately a 25 year return period low flow for September 2 - 8 flows. The larger tributaries on the west side of the Fraser are less affected by the drought, likely due to better snowpacks. The Nicola River, on the east side of the Fraser, is in the range of 20 – 50 year return low flows. Also, the Abbotsford-Sumas aquifer is below normal.

The Greater Vancouver Regional District (GVRD) provides water to 21 municipalities and one electoral area that make up the metropolitan area of Greater Vancouver. They have implemented stage 4 water restrictions due to the low water levels in their reservoirs which have resulted in additional expenses to some municipalities who have supplemented their water supply from other local sources. For example, the City of Richmond is drawing water from canals and trucking the water to irrigate sports fields and for street flushing.

In the Fraser Valley, groundwater aquifers are stressed and communities such as the Fraser Valley Regional District (FVRD) are increasing water filtration and treatment.

Although water use is reported as below normal, the Municipality of Bowen Island has installed a pump to maintain sufficient flows in the creek for fish and recreational use. They have voluntary water restrictions and do not have a supply or drought plan in place, although they do have a water conservation plan. Yarrow Waterworks District was the only waterworks / improvement district of seven respondents that reported below normal water availability volumes (50% of normal). The below normal volume has prompted YWD to supplement the existing gravity feed system with pumped water from wells.

Southern Interior

Kelowna recorded the driest June to August period since records began in 1899 and set a record for consecutive days without precipitation. Stream flows are at the lowest levels for this time of year in the historical record. Flows in the Okanagan tributaries and the Similkameen are estimated at a 100 year return period for September 2 – 8. The flows in the Tulameen River are at 28% of normal and Mission Creek is at 21% of normal. Lake levels are below normal as are many of the groundwater aquifer levels in the Southern Interior, including the Keremeos observation well which was established in 1967, where levels in July dipped below the historic minimum. The water level in the Westwold groundwater observation well is also below the historic minimum for the month of July. Fire fighting has also contributed to reduced water levels.

Releases from Nicola Lake dam to the Nicola River are at a minimum to try and preserve downstream winter fish flows. Some "stop irrigation" orders have been issued, and some groundwater wells cannot keep up with irrigation needs. Some creeks have dried up and water is being trucked to some residents. The District of Summerland has declared a state of emergency over its water supply, while trying to balance the water needs of the residents and fish. Water licensees on the Salmon River stopped diverting water for three days at the request of Land and Water BC Inc. to allow sufficient water for Kokanee to enter the river enabling brood stock to be salvaged.

Those communities using major water bodies, such as Shuswap or Okanagan Lake for their water supplies do not have issues with water availability with the exception that some gravity feed systems might require installation of pumps. The Village of Ashcroft and the Thompson-Nicola Regional District both documented their concern that the Thompson River may drop below the level of their intakes.

Twenty one of the 45 purveyors replied their available water volume is currently below normal. The majority of purveyors have imposed water restrictions including 20 through enforcement, 12 using voluntary means and 3 using a combination. Three of the 45 respondents indicated they don't think that there will be sufficient water given a normal winter.

Columbia & Kootenays

The western and southern portions of the Kootenay and Columbia regions, including the Kettle River and Moyie River are near historic lows for their records. The Slocan River is at approximately a 35 year low for September 2 – 8. Those areas in the eastern and northern portions of the Columbia and Kootenays that had better snowpacks, although still below normal, have stream flows in the range of 1 to 5 year return period flows for the beginning of September. The Kootenay River is currently at its lowest discharge ever recorded and has been setting record lows since early July.

The trends above are reflected in the surveys. The District of Spallumcheen operates 4 water systems including one, Hankey, which has become completely dry and is not expected to recover for two years. Currently, the District is hauling water for the residents affected and considering the expansion of an adjacent system to cover those affected.

The Regional District of East Kootenay has been requested to take over community water systems in their area because of lack of water concerns and changing legislation.

Blueberry Creek Irrigation District (BCID) is involved with a restructuring study that will allow BCID to obtain water from the City of Castlegar. As part of the process, the district utilized the Castlegar's water for the months of July and August. At the end of this period, they could not switchback without imposing severe restrictions and impacting local fish stocks. Castlegar allowed BCID to remain on their water system until such time that Blueberry Creek returned to a sufficient level.

Cariboo

The Upper Dean River is at a 10 year return period low flow compared to historic flows for September 2-8. However, the mainstem Chilcotin and its tributary Big Creek have nearly normal flows for this time of year. While there has been some rain in the last month, the large lakes, and last winter's near normal snowpack along the southern edge of this sub-basin has moderated the effect of the dry weather on mainstem flows. The River Forecast Centre suggests some tributaries without lakes on the plateau are probably experiencing lower flows. In the Quesnel River sub-basin, tributaries above the large lakes (i.e. Horsefly River) appear to be at 100 year return period low flows for September 2-8. Below the lakes, flows have dropped in the last month from a 20 year low flow to a 35 year low flow for the time of year as the lakes drain. The coastal areas remain at above normal precipitation.

The concerns for the Cariboo center on the District of 100 Mile House and Village of Clinton. Both have experienced increases in costs for monitoring and engineering studies and both are extremely concerned about the effects of reduced water levels and how freezing will impact their intakes.

Omineca-Peace and Skeena

The Fraser River above Prince George is experiencing low flows near a 5 year return period for September 2-8. This sub-basin experienced a better snowpack in the Rockies portion and some rain during August meaning flows have remained less extreme. The snowpack feeding the Nechako reservoir inflows were below normal last winter and inflows are probably quite low although rainfall in August would keep them above historic lows. The reservoir is above normal elevation for this time of year. The Bulkley and Skeena Rivers were very low August 1 (40 year return period low for August 1); however rainfall during August and flows at the beginning of September improved the situation to a 10 year return period low flow for this time of year. Flows to

the west, including coastal areas, received higher than normal precipitation and are not considered to be in a drought situation.

Comments from the survey were in line with the above and planning is occurring. To the east, the Village of Burns Lake has amended their water bylaw to allow for restrictions should they be necessary and the District of Chetwynd has recently completed a hydrology study for their supply.

Additional Survey Comments

The survey respondents identified the following measures they believe would help address their water supply issues:

- Change the plumbing and building codes to mandate water conservation measures;
- Provide incentives to communities that conserve water;
- Provide grants to small communities that rely on them to make infrastructure improvements.

Appendix

Drought Management Action Plan

1. Immediate Actions (1 week) - completed

- Public communication from the Premier's office asking British Columbians to cooperate in water conservation measures and informing them about the actions the government is taking.
- Assign a deputy minister's committee to be accountable for delivering the coordinated government response to the drought. Deputy's committee is to endorse this action plan and oversee implementation.
- Form a senior level, inter-ministry task group with the necessary authority to commit staff and resources to get this activity underway.
- Establish a web site to provide up-to-date information.

2. Short term Actions (3 months)

- Finalize action plan and identify necessary resources.
- Immediately inform Ministers and MLAs about the situation, the government's action plan and implications for their constituencies.
- Develop a drought response status report for MLAs and release to the public. Update frequently.
- Initiate immediate communication with communities and/or water suppliers to determine the state of their water supply and their forecasts of water availability and rate of use. Determine which communities may need emergency water supplies.
- In initial communications, request each community and/or water supplier to identify the water supply management (e.g. increase storage capacity of existing supplies or develop new supplies) and demand management (e.g. water restrictions, metering, leak detection and repair, pressure reduction, recycling and re-use) measures being employed.
- Initiate immediate communication with key industry stakeholders to engage their assistance in outreach activities on water conservation and drought response planning.
- Maintain communication with Provincial Emergency Program to ensure preparedness for water shortages.
- Assist in developing emergency supply plans for any communities that may run out of water for domestic, industrial/agricultural, and fire fighting purposes.
- Urge water suppliers to step up efforts to ensure that their existing emergency response plans address any potential impact drought may have on drinking water quality. Water suppliers and Health Authorities are to monitor water supplies to ensure that water quality standards are maintained during conditions of reduced or alternate water supplies.
- Develop an emergency management template for use by communities for preparing the emergency supply and response plans.

3. Medium term (up to 12 months - now until next July)

- Strongly urge communities and/or water suppliers to use water demand management tools to curtail water use and sustain their supplies. Communicate to all sectors (e.g. communities, water suppliers, industry and households) the year-round benefits of water use efficiency.
- Assess the adequacy of community water supplies for the summer of 2004 by April 30, 2004 and, where necessary, request communities and water suppliers to develop 'reduced supply' plans in consultation with water users.
- Maintain close contact with the federal government (Prairie Farm Rehabilitation Administration, National Water Supply Expansion Program and other related initiatives). If required, seek federal assistance for infrastructure upgrades and other identified needs.
- Monitor both surface and groundwater over the winter to determine if drought conditions will persist next year (even a normal snowpack may not supply enough water to saturate the ground and fill the reservoirs).
- Continue to communicate the need to conserve water over the winter if reservoirs do not fill.
- Integrate water supplier drought management response planning into the activities of the provincial Drinking Water Action Plan.
- Ensure a provincial drought response plan is in place for future years.
- Write a Water Conservation Report Card and implement needed actions in partnership with all sectors (public, private, voluntary).

4. Long term (1 to 3 years)

- Building on the Water Conservation Report Card, undertake a review of provincial water policy with a focus on water allocation and use. Adopt an integrated, watershed-based approach to water management to resolve conflicts among competing water uses.
- Under the Living Rivers Strategy, continue watershed fish sustainability planning initiatives and development of flow agreements with major water licensees.
- Link water availability to local government land use planning and growth management strategies.
- Adopt, with partners, a new governance model for the Okanagan Lake Regulation System.
- Update Okanagan Basin Water Availability Study to determine where water availability is a limit to growth and how much water is still available for licensing.
- Examine historic fish-diversion conflicts to assess merits of various options (e.g. enhanced storage or infrastructure upgrades to minimize water losses).
- Examine the feasibility of moving water users off small streams and on to lakes to minimize impacts on fish and fish habitat.
- Assess the hydrometric network and the hydrological forecast methods to see if better volume forecasts can be available to give earlier warning of impending drought situations.

Survey Questions

2003 DROUGHT STATUS FACT FINDER

INTRODUCTION

The Provincial Government is currently researching the extent of the drought in BC. We would like to ask some questions as it relates specifically to your water supply systems and would be pleased if you could assist us in this endeavour. We anticipate that it should take about 15 minutes to provide the information requested.

CONTACT INFORMATION

1. Name of person filing out response (Contact Name):
2. Position:
3. Phone Number:
4. Representing: (community name/ regional district/ municipality/ other)

GENERAL

5. How many individual water systems do you operate?
6. What is the total population (or number of connections) served?
7. How many of the individual water systems are currently stressed due to drought?
8. What portion of the total population is being served by stressed systems?
9. How many of the individual water systems do you anticipate may have drought problems next spring?

STATE OF SUPPLY FOR EACH WATER SYSTEM

10. Name of Water Supply (Supplies)
11. What percentage is used for: Domestic _____ Irrigation _____ Other _____
12. Is current water supply from Surface / Groundwater _____(% - if known)
13. Water Volume available - Above / At / Below normal? _____(% - if known)
14. Current Rate of use: Above / At / Below normal? _____ (% - if known)
15. Is your supply adequate to carry you through the winter if there is normal precipitation?
16. Are you experiencing any water quality problems resulting from the drought conditions?
17. Do you have a supply plan that provides for growth in your current water supply or system?
18. Have you completed a study that considers hydrology or alternative supplies for use in the event of drought?
19. Do you have a drought management plan in place for: a) short term? b) long term?
20. Do you have a water conservation plan in place?

RESTRICTIONS

21. Are you currently on any water restrictions? If so, describe extent of them.
22. Are your water restrictions enforced or voluntary?
23. Is there a chance these restrictions might need to be increased this year?
24. Do you offer any incentives for conservation?

COMMENTS

25. Do you have any unusual expenditures as a result of the drought?
26. Any additional comments?

Links & References

1. B.C. River Forecast Centre: http://srmwww.gov.bc.ca/aib/wat/rfc/river_forecast/runoff.htm

2. B.C. Drought Information Website: http://www.lwbc.bc.ca/drought/

3. A Water Conservation Strategy for British Columbia. September 1998. Water Conservation Strategy Working Group (BC). Ministry of Environment, Lands and Parks.